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**Notice of Allowability**

Application No.

10/791,492

Examiner

Ron E. Pompey

Applicant(s)

MORROW ET AL.

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview 18 December 2006.
2. ☒ The allowed claim(s) is/are 15, 16, 17, 19, 20, 23 and 27-32.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
**MICHAEL LEBENTRITT**  
SUPERVISORY PATENT EXAMINER

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Plimier on 12/18/06.

The application has been amended as follows:

Cancel claims 18, 21-22 and 24-26.

In claim 15, line 26, after "surrounding environment" insert -- by applying a layer of underfill material extending from the substrate to the second integrated circuit die, the second volume between the first integrated circuit die and the second integrated circuit die and the second volume around the second plurality of connectors being substantially free of the underfill material after sealing the device --

In claim 30, line 13, after "integrated circuit die having" insert -- a bottom surface closer to the first integrated circuit die and a top surface further from the first integrated circuit die --.

In claim 30, line 14, after "extending from" insert -- top surface of the --.

In claim 30, line 15, after "die to the" insert -- bottom surface of the --.

In claim 30, line 18, after "environment by" insert -- applying --.

In claim 30, line 18, after "underfill material," insert -- extending from the substrate to the second integrated circuit die, --.

In claim 30, line 20, before "around," insert -- the second volume --.

***Allowable Subject Matter***

2. Claims 15-17, 19, 20, 23, and 27-30 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record, either singly or in combination, fails to disclose the limitations of:

a second integrated circuit die above the first integrated circuit die and spaced apart from the first integrated circuit die by a second distance to form a second volume between the first integrated circuit die and the second integrated circuit die, the second integrated circuit die having a bottom surface closer to the first integrated circuit die and a top surface further from the first integrated circuit die and a plurality of microelectronic devices;

a second plurality of connectors extending from the top surface of the first integrated circuit die to the bottom surface of the second integrated circuit die;

wherein sealing the device comprises substantially sealing the second volume between the first and second integrated circuit dies from a surrounding environment by applying a layer of underfill material extending from the substrate to the second integrated circuit die, the second volume between the first integrated circuit die and the second integrated circuit die and the second volume around the second plurality of connectors being substantially free of the underfill material after sealing the device.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably


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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E. Pompey whose telephone number is (571) 272-1680. The examiner can normally be reached on 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ron Pompey  
AU: 2812  
12/20/06

  
MICHAEL LEBENTRITT  
SUPERVISORY PATENT EXAMINER